CLAIMS:

1. A method for writing data in a storage medium (42,43) comprising polymer material (10,42) by modifying its optical properties, said method comprising the steps of:
- heating up the material above the glass-transition temperature (T_g),
- performing alignment of said material,
- initiating the writing by reorientation of photo-orientable-groups (R) in the polymer material (10,42) by means of illuminating with light at a wavelength and for a time period, or other means, that initiates the reorientation, and that enables anisotropic emission from the storage medium (42,43) during a reading process.

2. A method according to claim 1, in which the material includes dipole emitters and the alignment enables anisotropic emission from the aligned anisotropic dipole emitters of the storage medium.

3. A method according to claim 2, in which the dipole emitters are fluorescent and the alignment enables anisotropic emission of fluorescent dipole emitters.

4. A method according to claim 1, wherein the reorientation of photo-orientable groups, comprises reorientation of one or more anistropic groups present in the polymer material.

5. A method according to claim 1, wherein initiating and heating are performed by means of a single beam.

6. A method according to claim 1, wherein initiating is performed by means of a first beam and heating is achieved with a second beam.

7. A method according to claim 1, wherein initiating is performed during a time period which is much shorter than a time scale on which the polymer, preferably an LC polymer, reorients, typically a time period within a nanosecond time regime such as 10-50 ns.

8. Device (40) for optical data storage, comprising:
- polymer material (10,42) as storage medium,
- means for heating up the material above the glass-transition temperature (T_g),
- means for performing alignment of the material, and
- means for initiating the writing by reorientation of photo-orientable units of the polymer (10,42) by illuminating with light at a wavelength and for a time period, or other means, that initiates the reorientation, whereby data can be stored in the polymer material by modifying its optical properties, enabling anisotropic emission from the device during a reading process.

9. Device according to claim 8, wherein the polymer material further comprises dipole emitters that can be aligned, for enabling anisotropic dipole emission from the device during a reading process.

10. Device according to claim 9, wherein the dipole emitters comprise anisotropic fluorescent chromophores, for enabling anisotropic emission of fluorescence from the device during a reading process.

11. Device according to claim 10, wherein the fluorescent chromophores constitute any fluorescent organic or inorganic molecules with a dipole moment, selected from the group of: liquid crystal systems, organic dyes, nanotubes, nanowires and polymers with substitutents containing any molecules selected from the above mentioned group.

12. Device according to claim 8, wherein the polymer material comprises one or more anisotropic polymers.

13. Device according to claim 8, wherein a polymer layer, preferably a polymer film, is provided on a transparent base plate.

14. Device according to claim 8, wherein said device comprises combined heat source means and light source means, whereby said polymer film may be heated and the molecular order or orientation of said film may be varied.

15. Device according to claim 8, wherein said device comprises physical orientation means such as an alignment layer, and/or transparent electrode means for orientation of the polymer layers.

16. Device according to claim 8, wherein said heating source means and/or light source means comprises a laser.

17. Device according to claim 8, wherein absorption properties of said polymer film provide data to be stored with a laser beam of a particular wavelength and intensity and read out with another laser beam having a different wavelength, or different intensity significantly below the writing threshold, not disturbing the stored data.

18. Storage medium (42,43) comprising polymer material (10,42), adapted to store data by modifying its optical properties, said polymer material comprising photo-orientable groups (R), that can be reoriented, subsequent to being aligned, upon illumination with light at a wavelength and for a time period that initiates the reorientation, where the photo-orientable groups can self-develop at a suitable temperature, typically above the glass transition temperature (T_g), said polymer material comprising anisotropic fluorescent emitters, enabling an anisotropic emission of fluorescence during reading said stored data.

19. Storage medium according to claim 18, comprising groups selected from: azobenzene, biazobenzene, triazobenzene and azoxybenzene, as well as alkyl substituted derivatives of the said compounds, stilbene or spiropyran group.

20. Storage medium according to claim 18, wherein the polymer material comprises a singular polymer layer.

21. Storage medium according to claim 18, wherein the polymer material comprises a multiple of polymer layers.

22. A method of reading data stored in a device according to claim 9, said method comprising the steps of:
- illuminating with light at a wavelength, that causes the anisotropic fluorescent dipole emitters to emit light and,

- collecting the anisotropic emission from said dipole emitters.